F I G. 1

F I G. 2

F I G. 3

F I G. 4

F I G. 5

FIG. 6

FIG. 7

FIG. 8

GST

GCK

GEN

SST1

SCK1

DAT1

SST2

SCK2

DAT2

F I G . 9

GST1

GCK1

GEN1

GCS1

GST2

GCK2

GEN2

GCS2

SST

SCK

DAT

F i G . 10

GST
GCK
GEN
SST1
SCK1
DAT1
SST2
SCK2
DAT2

FIG.11

GST1

GCK1

GEN1

GCS1

GST2

GCK2

GEN2

GCS2

SST

SCK

DAT

FIG.12

GST

GCK

GEN

SST1

SCK1

DAT1

SST2

SCK2

DAT2

FIG.13

GST1
GCK1
GEN1
GCS1
GST2
GCK2
GEN2
GCS2
SST
SCK
DAT

F I G. 14(b)

SD1

There was a small bird
in the field.

SD2

GD

F I G. 14(a)

SD1

SD2

GD

FIG. 15(b)

GD2

SD

There was a small bird
in the field.

GD1

FIG. 15(a)

GD2

SD

GD1

FIG.16

GST

GCK

GEN

SST1

SCK1

DAT1

SST2

SCK2

DAT2

FIG.17(b)

There was a small bird in the field

SD1

SD2

GD

FIG.17(a)

SD1

SD2

GD

FIG. 18

F I G. 1 9

SCK
/SCK
SST

IMP
DIG

TFG

FF N1
FF N2
FF N3
FF N4

LT
LT
DA
AS
SL1

LT
LT
DA
AS
SL2

LT
LT
DA
AS
SL3

LT
LT
DA
AS
SL4

F I G . 20

SD1

GD

SD2

There was a small bird in the field.

F I G . 2 1

SD1

GD   SD2

FIG. 22

SST

SCK

DAT1

DAT2

SL1

SL2

SL3

SL4

SL5

SL6

GL

FIG. 23

SST

SCK

DAT1

DAT2

SL1

SL2

SL3

SL4

SL5

SL6

GL

F I G. 2 4

FIG. 25

FIG. 26

FIG. 27

F I G . 2 8 (a)

(IMAGE DATA)

F I G . 2 8 (b)

(TEXT DATA)

F I G. 2 9 (a)

F I G. 2 9 (b)

F I G. 3 0 (a)

CONTROL SIGNAL＝H ─────────────┐
                                      │
                                      ▼
DIN   ┌──────────────┐   DAT
(VGA 8 BIT   ────────▶ │   V I D   │ ────────▶   (VGA 8 BIT
IMAGE SIGNAL)   └──────────────┘   IMAGE SIGNAL)

F I G. 3 0 (b)

CONTROL SIGNAL＝L ─────────────┐
                                      │
                                      ▼
DIN   ┌──────────────┐   DAT
(VGA 8 BIT   ────────▶ │   V I D   │ ────────▶   (QVGA 4 BIT
IMAGE SIGNAL)   └──────────────┘   IMAGE SIGNAL)

F I G. 3 1 (a)

CONTROL SIGNAL=H

TIN
(VSYNC,
HSYNC,
CLK)

C T L

GST(60Hz)
GCK(15.75kHz)
SST(31.5kHz)
SCK(3.15MHz)

F I G. 3 1 (b)

CONTROL SIGNAL=L

TIN
(VSYNC,
HSYNC,
CLK)

C T L

GST(60Hz)
GCK(7.875kHz)
SST(15.75kHz)
SCK(3.15MHz)

F I G. 3 2

F I G. 3 3

F I G. 3 4

FIG. 35

F I G. 3 6

F I G. 3 7

FIG. 38

F I G. 3 9

F I G. 4 0

FIG.41

GST

GCK

GEN

SST1

SCK1

DAT1

SCS1

SST2

SCK2

DAT2

SCS2

F I G. 4 2

FIG. 43 (b)

SD1

LOW QUALITY MODE

SD2

GD

FIG. 43 (a)

SD1

HIGH QUALITY MODE

SD2

GD

F I G. 4 4 (b)

SD1

LOW POWER CONSUMPTION MODE

SD2

GD

F I G. 4 4 (a)

SD1

HIGH POWER CONSUMPTION MODE

SD2

GD

FIG.45(b)

GD2

SD1

SD2

GD2

GD1

FIG.45(a)

SD1

SD2

GD1

F I G. 4 6

SCK

/SCK

SST

FF N1   FF N2   FF N3   FF N4

/S1   S1

/S2   S2

/S3   S3

/S4   S4

DAT

AS   AS

AS   AS

AS   AS

AS   AS

SL1

SL2

SL3

SL4

SL5

SL6

SL7

SL8

F I G. 4 7

F I G. 4 8

FIG. 49

F I G . 50

GST

GCK

GEN

SST

SCK

DAT

F I G. 5 1

F I G. 5 2

GST

GCK

GEN

SST

SCK

DAT

FIG. 53 (b)

BLACK & WHITE IMAGE

SD1

SD2

GD

FIG. 53 (a)

SD1

COLOR IMAGE

SD2

GD

F I G. 5 4

F I G. 55(b)

SD1

SD2

GD

F I G. 55(a)

SD1

SD2

GD

F I G. 56 (b)

SD1

SD2

GD

F I G. 56(a)

SD1

SD2

GD

F I G. 5 7

FIG. 58

SST

SCK

DIG

TFG

DB

DW

SL1

SL2

SL3

SL4

F I G.   5 9

F I G. 6 0

SCK

/SCK

SST → FF →

DIG

LAT

MUX

VREF

VSEL

DAC

AMP

SWT

FMT

SL

FIG. 61(b)

SD1

SD2

GD

FIG. 61(a)

SD1

SD2

GD

FIG. 62(b)

FIG.62(a)

あいうえお
亜医宇江男
ABCDEabcde
1234567890

SD1
SD2
GD1
GD2

FIG. 63(b)

GD2

SD1

SD2

GD1

97 98 99

FIG. 63(a)

GD2

SD1

SD2

GD1

F I G. 6 4 (b)

SD1

REFLECTION DISPLAY MODE
BACKLIGHT IS TURNED OFF

SD2

GD

F I G. 6 4 (a)

SD1

TRANSMISSION DISPLAY MODE
BACKLIGHT IS TURNED ON

SD2

GD

FIG. 65

GST

GCK

GEN

SST

SCK

DAT

FIG. 66

GST

GRS

GCK

GEN

SST

SCK

DAT

F I G. 67

GRS
GCK
/GCK
GST

GEN

GL1
GL2
GL3
GL4

F I G . 6 8

FIG. 69

SST

SRS

SCK

DAT

SL1

SL2

SL3

SL4

SL5

SLn

GLm

GL(m+1)

F I G. 70

SRS

SCK

/SCK

SST

DAT

FF N1

FF N2

FF N3

FF N4

AS /S1 S1 SL1

AS /S2 S2 SL2

AS /S3 S3 SL3

AS /S4 S4 SL4

FIG. 71

FIG. 72

GST

GPD

GFD

GCK

GEN

SST

SCK

DAT

GL1

GL2

GL7

GL8

GL9

GLm

F I G. 7 3

FIG. 74

SST
SPD
SFD
SCK
DAT
SL1
SL2
SL7
SL8
SL9
SLn
GLm
GL(m+1)

F I G. 7 5

F I G. 7 6

FIG. 77

FIG. 78 (a)

100

FIG. 78 (b)

a-Si

100

FIG. 78 (c)

EXCIMER LASER

102

100

FIG. 78 (d)

102   102

100

FIG. 78 (e)

103
102   102   100

FIG. 78 (f)

104   104

103
102   102   100

FIG. 78 (g)

P^+ION DOPING

104
108
103
102   100
111   112   111

FIG. 78 (h)

B^-ION DOPING

108
104
103
100
111   112   111   113   114   113

FIG. 78 (i)

104   104

105
103
100

FIG. 78 (j)

105a 105a 105a 105a
104   104

105
103
100

FIG. 78 (k)

106   104   106

105
103
100

F I G.   7 9

```
┌─────────────────────────────────────────────────────────┐
│                                                           │
│  ┌──────────────┐   ┌──────────────┐   ┌──────────────┐  │
│  │COMMUNICATIONS│   │              │   │   DISPLAY    │  │
│  │    MEANS     │   │ INPUT MEANS  │   │    MEANS     │  │
│  └──────────────┘   └──────────────┘   └──────────────┘  │
│         ↕                  ↕                  ↕           │
│  ┌──────────────┐   ┌──────────────┐   ┌──────────────┐  │
│  │  DETECTION   │   │ PROCESSING   │   │  RECORDING   │  │
│  │    MEANS     │   │    MEANS     │   │    MEANS     │  │
│  └──────────────┘   └──────────────┘   └──────────────┘  │
│                                                           │
└─────────────────────────────────────────────────────────┘
```

FIG. 80 (a)

FIG. 80(b)

FIG. 81(a)

FIG. 81(b)

FIG. 82

201

F I G . 8 3

FIG. 84

216

214

211

212

2000.2.1
10:35

213

217

215

F I G . 8 5

225

221

222

GAME

223

224

226

F I G. 86(b)

245

244

246

241

242

243

F I G. 86(a)

232

237

236

231

235

234

FIG. 87

FIG. 88

262

There was a
big dog in
the park.

261

263

265

264

FIG. 89

25km

271a

272

273

271b

274   275

FIG. 90

F I G . 9 1

291

292

293

294

296

297

295

FIG. 92

301

302

303

305

307   304   306

F I G. 9 3

FIG. 94

SP

CK

SMP1

SMP2

SMPn

DAT

DIGDAT

TRF

SL1

SL2

SLn

POTENTIALS ARE EQUAL

POTENTIALS ARE EQUAL

POTENTIALS ARE EQUAL

POTENTIALS ARE EQUAL

TURN-ON POTENTIAL VW

FIG. 95

SR2

SP
CK
DIGDAT
TRF
VW

SMP1 SMP2 SMP3 SMPn SMP(i-1) SMPi

Data Latch

SL1 SL2 SL3 SLn SL(i-1) SLi

21

22

F I G. 9 6

F I G. 9 7

FIG. 98

FIG. 99

SP1

SP2

CK

SMP1_1

SMP1_2

SMP1_n

SMP2_1

SMP2_2

SMP2_n

DAT

DIGDAT

SL1

SL2

SLn

FIG. 100

FIG. 101

F I G. 1 0 2

F I G. 1 0 3

IN

INB

OUT

FIG. 104

F I G. 1 0 5

SP

SPB

CK

CKB

SMP1

Q1(ENA1)

SMP2

Q2(ENA2)

SMP3

Q3(ENA3)

SMP4

Q(i-1)(ENA(i-1))

SMPi

F I G. 1 0 6 (a)

F I G. 1 0 6 (b)

F I G. 1 0 7

$\overline{S}$

R

Q

FIG. 108

F I G. 1 0 9

FIG. 110

IMAGE SIGNAL
PROCESSING
SECTION

ANALOG R DATA
ANALOG G DATA
ANALOG B DATA
Hsync
CLOCK
Vsync

ANALOG R DATA
ANALOG G DATA
ANALOG B DATA
S_SP
CLOCK

ANSD

DISPLAY SECTION

BINSD

DIGITAL R DATA(1bit)
DIGITAL G DATA(1bit)
DIGITAL B DATA(1bit)

VB
VW
TRF

LIQUID CRYSTAL POTENTIAL
REVERSING SECTION

F I G. 1 1 1

FIG. 112

F I G. 1 1 3

R

C

FIG. 114

LIQUID CRYSTAL DRIVE
BLACK POTENTIAL

OUTPUT OF DATA POTENTIAL
STABILIZING SECTION

TRF

F I G. 1 1 5

FIG. 116

FIG. 117

SLj

CL

Cs

SW

GLj

FIG. 118

POTENTIAL OF DATA SIGNAL LINE

PRECHARGE POTENTIAL 6VDC

10.5V

4.5V

4.5V

1.5V

PVID(6V)

PCLT

FIG. 119

INSUFFICIENT CHARGE IN
IMAGE SIGNAL LINE

F I G. 1 2 0

FIG. 121

F I G. 1 2 2

F I G. 1 2 3

SEL-LOG

IN1
IN1B
IN2
IN2B

Level shifter

Level shifter

LS_EN for analog driver

OUT1

OUT2

F I G. 1 2 4

SIMP_ORG

TRF_ORG

TRF

SIMP

F I G. 1 2 5

SELECTOR

LR   LG   LB

SIMP

TRF   BLOCK R   BLOCK G   BLOCK B

PCTL

RSL   GSL   BSL

F I G. 1 2 6

F I G. 1 2 7

SEL—CORE

F I G. 1 2 8

SOURCE BUS LINE POTENTIAL

α

β

PRECHARGE AND WHITE WRITING
SIGNAL SA

BLACK WRITING SIGNAL SB

SIMP

DIGDAT

TRF

PCTL

time →

FIG. 129

SOURCE BUS LINE POTENTIAL

PRECHARGE AND WHITE WRITING
SIGNAL SA

BLACK WRITING SIGNAL SB

SIMP

DIGDAT

TRF

PCTL

time

F I G. 1 3 0

FIG. 131

SIMP DIGDAT TRF

SEL-CORE2

FIG. 132

F I G . 133

SL

CL

CS

SW

GL

F I G. 1 3 4

FIG. 135

F I G. 1 3 6

SCK

/SCK

SST

DAT

TFG

FF N1
FF N2
FF N3
FF N4

AS

AS
AM
SL1

AS

AS
AM
SL2

AS

AS
AM
SL3

AS

AS
AM
SL4

F I G. 1 3 7

F I G. 1 3 8

F I G. 1 3 9

FIG. 140

GST

GCK

GEN

SST

SCK

DAT

F I G. 1 4 1